



**EBERLINE**  
SERVICES

0060739

September 27, 2003

Mr. Steve Trent  
Fluor Hanford Inc.  
825 Jadwin Avenue  
Richland, WA 99352

Reference: P.O. #630  
Eberline Services R3-08-095-7570, SDG H2317

Dear Mr. Trent:

Enclosed is the data report for three other solid samples designated under SAF No. F03-012 received at Eberline Services on August 19, 2003. The samples were analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion  
Program Manager

MCM

Enclosure: Data Package



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## 1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H2317 was composed of three other solid samples designated under SAF No. F03-012 with a Project Designation of: 200-PW-2/200-PW-4 OU – Other Solid.

The samples were received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist.

## 2.0 ANALYSIS NOTES

### 2.1 Tritium Analyses

No problems were encountered during the course of the analyses.

### 2.2 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

### 2.3 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

### 2.4 Total Strontium Analyses

No problems were encountered during the course of the analyses.

### 2.5 Technetium-99 Analyses

There was contamination in the method blank (0.609 pCi/g). The activity was below the RDL (15 pCi/g) for Tc-99. The activity in the method blank was probably from a long-lived isotope in the tracer. No other problems were encountered during the course of the analyses.

### 2.6 Iodine-129 Analyses

No problems were encountered during the course of the analyses.

### 2.7 Isotopic Thorium Analyses

No problems were encountered during the course of the analyses.

### 2.8 Neptunium-237 Analyses

No problems were encountered during the course of the analyses.

**Case Narrative Certification Statement**

**"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."**

*Melissa Mannion*

**Melissa C. Mannion  
Program Manager**

*9/27/13*

**Date**

EBERLINE SERVICES / RICHMOND  
SAMPLE DELIVERY GROUP H2317

SDG 7570  
Contact Melissa C. Mannion

Client Hanford  
Contract No. 630  
Case no SDG H2317

S U M M A R Y   D A T A   S E C T I O N

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Melissa Mannion  
Prepared by

Melissa Mannion  
Reviewed by

Lab id EBRLNE  
Protocol Hanford  
Version Ver 1.0  
Form DVD-TOC  
Version 3.06  
Report date 09/27/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2317

SDG 7570  
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford  
Contract No. 630  
Case no SDG\_H2317

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRLNE  
Protocol Hanford  
Version Ver 1.0  
Form DVD-RG  
Version 3.06  
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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2317

SDG 7570  
Contact Melissa C. Mannion

GUIDE , c o n t .

Client Hanford  
Contract No. 630  
Case no SDG\_H2317

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

REPORT GUIDES

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SUMMARY DATA SECTION

Page 2

Lab id EBRLNE  
Protocol Hanford  
Version Ver 1.0  
Form DVD-RG  
Version 3.06  
Report date 09/27/03

**EBERLINE SERVICES/RICHMOND**  
 SAMPLE DELIVERY GROUP H2317

SDG 7570  
 Contact Melissa C. Mannion

**LAB SAMPLE SUMMARY**

Client Hanford  
 Contract No. 630  
 Case no SDG H2317

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R308095-01	B17C34	200-PW-2/200-PW-4 Reten.	SOLID		F03-012	F03-012-004	08/13/03 08:30
R308095-02	B17C35	200-PW-2/200-PW-4 Reten.	SOLID		F03-012	F03-012-004	08/13/03 09:30
R308095-03	B17C36	200-PW-2/200-PW-4 Reten.	SOLID		F03-012	F03-012-004	08/13/03 10:10
R308095-04	Lab Control Sample		SOLID		F03-012		
R308095-05	Method Blank		SOLID		F03-012		
R308095-06	Duplicate (R308095-01)	200-PW-2/200-PW-4 Reten.	SOLID		F03-012		08/13/03 08:30

Lab id EBRLNE  
 Protocol Hanford  
 Version Ver 1.0  
 Form DVD-LS  
 Version 3.06  
 Report date 09/27/03

**EBERLINE SERVICES/RICHMOND**  
**SAMPLE DELIVERY GROUP H2317**

SDG 7570  
 Contact Melissa C. Mannion

**QC SUMMARY**

Client Hanford  
 Contract No. 630  
 Case no SDG H2317

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7570	F03-012-004	B17C34	SOLID	100.0	37.8 g		08/19/03	6	R308095-01	7570-001
		B17C35	SOLID	100.0	42.7 g		08/19/03	6	R308095-02	7570-002
		B17C36	SOLID	100.0	26.1 g		08/19/03	6	R308095-03	7570-003
		Method Blank	SOLID						R308095-05	7570-005
		Lab Control Sample	SOLID						R308095-04	7570-004
		Duplicate (R308095-01)	SOLID	100.0	37.8 g		08/19/03	6	R308095-06	7570-006

Lab id EBRLNE  
 Protocol Hanford  
 Version Ver 1.0  
 Form DVD-QS  
 Version 3.06  
 Report date 09/27/03

**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H2317

SDG 7570  
 Contact Melissa C. Mannion

**PREP BATCH SUMMARY**

Client Hanford  
 Contract No. 630  
 Case no SDG H2317

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED				QUALI- FIERS		
			BATCH	2σ %	CLIENT	MORE	RE	BLANK		LCS	DUP/ORIG
<b>Alpha Spectroscopy</b>											
NP	SOLID	Neptunium in Soil	7078-037	5.0	3			1	1	1/1	X
TH	SOLID	Thorium, Isotopic in Soil	7078-037	5.0	3			1	1	1/1	
<b>Beta Counting</b>											
SR	SOLID	Total Strontium in Soil	7078-037	10.0	3			1	1	1/1	
TC	SOLID	Technetium 99 in Soil	7078-037	10.0	3			1	1	1/1	
<b>Gamma Spectroscopy</b>											
I	SOLID	Iodine 129 in Soil	7078-037	10.0	3			1	1	1/1	
<b>Liquid Scintillation Counting</b>											
C	SOLID	Carbon 14 in Soil	7078-037	10.0	3			1	1	1/1	
H	SOLID	Tritium in Soil	7078-037	10.0	3			1	1	1/1	
NI_L	SOLID	Nickel 63 in Soil	7078-037	10.0	3			1	1	1/1	

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.  
 Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H2317

SDG 7570  
 Contact Melissa C. Mannion

**LAB WORK SUMMARY**

Client Hanford  
 Contract No. 630  
 Case no SDG H2317

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	MATRIX SAF No	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R308095-01	B17C34		7570-001	C		09/15/03	09/27/03	MWT	Carbon 14 in Soil
08/13/03	200-PW-2/200-PW-4 Reten.	SOLID	7570-001	H		09/17/03	09/27/03	MWT	Tritium in Soil
08/19/03	F03-012-004	F03-012	7570-001	I		09/24/03	09/27/03	MWT	Iodine 129 in Soil
			7570-001	NI_L		09/17/03	09/27/03	MWT	Nickel 63 in Soil
			7570-001	NP		09/18/03	09/27/03	MWT	Neptunium in Soil
			7570-001	SR		09/12/03	09/27/03	MWT	Total Strontium in Soil
			7570-001	TC		09/22/03	09/27/03	MWT	Technetium 99 in Soil
			7570-001	TH		09/12/03	09/27/03	MWT	Thorium, Isotopic in Soil
R308095-02	B17C35		7570-002	C		09/16/03	09/27/03	MWT	Carbon 14 in Soil
08/13/03	200-PW-2/200-PW-4 Reten.	SOLID	7570-002	H		09/18/03	09/27/03	MWT	Tritium in Soil
08/19/03	F03-012-004	F03-012	7570-002	I		09/25/03	09/27/03	MWT	Iodine 129 in Soil
			7570-002	NI_L		09/17/03	09/27/03	MWT	Nickel 63 in Soil
			7570-002	NP		09/18/03	09/27/03	MWT	Neptunium in Soil
			7570-002	SR		09/12/03	09/27/03	MWT	Total Strontium in Soil
			7570-002	TC		09/23/03	09/27/03	MWT	Technetium 99 in Soil
			7570-002	TH		09/12/03	09/27/03	MWT	Thorium, Isotopic in Soil
R308095-03	B17C36		7570-003	C		09/16/03	09/27/03	MWT	Carbon 14 in Soil
08/13/03	200-PW-2/200-PW-4 Reten.	SOLID	7570-003	H		09/18/03	09/27/03	MWT	Tritium in Soil
08/19/03	F03-012-004	F03-012	7570-003	I		09/25/03	09/27/03	MWT	Iodine 129 in Soil
			7570-003	NI_L		09/17/03	09/27/03	MWT	Nickel 63 in Soil
			7570-003	NP		09/18/03	09/27/03	MWT	Neptunium in Soil
			7570-003	SR		09/12/03	09/27/03	MWT	Total Strontium in Soil
			7570-003	TC		09/23/03	09/27/03	MWT	Technetium 99 in Soil
			7570-003	TH		09/12/03	09/27/03	MWT	Thorium, Isotopic in Soil
R308095-04	Lab Control Sample		7570-004	C		09/16/03	09/27/03	MWT	Carbon 14 in Soil
		SOLID	7570-004	H		09/18/03	09/27/03	MWT	Tritium in Soil
		F03-012	7570-004	I		09/26/03	09/27/03	MWT	Iodine 129 in Soil
			7570-004	NI_L		09/17/03	09/27/03	MWT	Nickel 63 in Soil
			7570-004	NP		09/18/03	09/27/03	MWT	Neptunium in Soil
			7570-004	SR		09/12/03	09/27/03	MWT	Total Strontium in Soil
			7570-004	TC		09/23/03	09/27/03	MWT	Technetium 99 in Soil
			7570-004	TH		09/12/03	09/27/03	MWT	Thorium, Isotopic in Soil

WORK SUMMARY

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SUMMARY DATA SECTION

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 Form DVD-LWS  
 Version 3.06  
 Report date 09/27/03

**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H2317

SDG 7570  
Contact Melissa C. Mannion

**WORK SUMMARY, cont.**

Client Hanford  
Contract No. 630  
Case no SDG H2317

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	MATRIX SAF No	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R308095-05	Method Blank		7570-005	C		09/15/03	09/27/03	MWT	Carbon 14 in Soil
		SOLID	7570-005	H		09/17/03	09/27/03	MWT	Tritium in Soil
		F03-012	7570-005	I		09/26/03	09/27/03	MWT	Iodine 129 in Soil
			7570-005	NI_L		09/17/03	09/27/03	MWT	Nickel 63 in Soil
			7570-005	NP		09/18/03	09/27/03	MWT	Neptunium in Soil
			7570-005	SR		09/12/03	09/27/03	MWT	Total Strontium in Soil
			7570-005	TC		09/23/03	09/27/03	MWT	Technetium 99 in Soil
			7570-005	TH		09/12/03	09/27/03	MWT	Thorium, Isotopic in Soil
R308095-06	Duplicate (R308095-01)		7570-006	C		09/16/03	09/27/03	MWT	Carbon 14 in Soil
08/13/03	200-PW-2/200-PW-4 Reten.	SOLID	7570-006	H		09/18/03	09/27/03	MWT	Tritium in Soil
08/19/03		F03-012	7570-006	I		09/26/03	09/27/03	MWT	Iodine 129 in Soil
			7570-006	NI_L		09/17/03	09/27/03	MWT	Nickel 63 in Soil
			7570-006	NP		09/18/03	09/27/03	MWT	Neptunium in Soil
			7570-006	SR		09/12/03	09/27/03	MWT	Total Strontium in Soil
			7570-006	TC		09/24/03	09/27/03	MWT	Technetium 99 in Soil
			7570-006	TH		09/12/03	09/27/03	MWT	Thorium, Isotopic in Soil

COUNTS OF TESTS BY SAMPLE TYPE											
TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
C	F03-012	Carbon 14 in Soil	C14_COX_LSC	3			1	1	1		6
H	F03-012	Tritium in Soil	TRITIUM_COX_LSC	3			1	1	1		6
I	F03-012	Iodine 129 in Soil	I129_SEP_LEPS_GS	3			1	1	1		6
NI_L	F03-012	Nickel 63 in Soil	NI63_LSC	3			1	1	1		6
NP	F03-012	Neptunium in Soil	NP237_LLE_PLATE_AEA	3			1	1	1		6
SR	F03-012	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	3			1	1	1		6
TC	F03-012	Technetium 99 in Soil	TC99_TR_SEP_LSC	3			1	1	1		6
TH	F03-012	Thorium, Isotopic in Soil	THISO_IE_PLATE_AEA	3			1	1	1		6
TOTALS				24			8	8	8		48

Lab id EBRLNE  
Protocol Hanford  
Version Ver 1.0  
Form DVD-LWS  
Version 3.06  
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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2317

7570-005

Method Blank

METHOD BLANK

SDG <u>7570</u>	Client/Case no <u>Hanford</u>	SDG <u>H2317</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R308095-05</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7570-005</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>F03-012</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	-0.032	1.6	2.7	400	U	H
Carbon 14	14762-75-5	1.29	1.8	3.0	50	U	C
Nickel 63	13981-37-8	-0.296	1.3	2.1	30	U	NI_L
Total Strontium	SR-RAD	0.061	0.13	0.25	1.0	U	SR
Technetium 99	14133-76-7	<u>0.609</u>	0.19	0.34	15		TC
Thorium 228	14274-82-9	0.033	0.067	0.26		U	TH
Thorium 230	14269-63-7	0.134	0.13	0.26	1.0	U	TH
Thorium 232	TH-232	0.067	0.067	0.26	1.0	U	TH
Neptunium 237	13994-20-2	0	0.099	0.15	1.0	U	NP
Iodine 129	15046-84-1	-0.120	0.36	0.83	2.0	U	I

200-PW-2/200-PW-4 OU - Other Solid

QC-BLANK #45594
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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>09/27/03</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2317

7570-004

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7570</u>	Client/Case no <u>Hanford</u>	<u>SDG H2317</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R308095-04</u>	Client sample id <u>Lab Control Sample</u>	
Dept sample id <u>7570-004</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>F03-012</u>	

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	616	9.1	2.6	400		H	697	28	88	85-115	80-120
Carbon 14	1660	34	9.3	50		C	1740	70	95	84-116	80-120
Nickel 63	255	5.4	2.5	30		NI_L	274	11	93	85-115	80-120
Total Strontium	23.4	0.90	0.26	1.0		SR	21.9	0.88	107	82-118	80-120
Technetium 99	123	2.3	0.35	15	B	TC	120	4.8	102	83-117	80-120
Thorium 230	44.6	4.4	0.27	1.0		TH	44.8	1.8	100	82-118	80-120
Neptunium 237	20.2	2.2	0.17	1.0		NP	21.8	0.87	93	82-118	80-120
Iodine 129	128	1.8	<u>2.9</u>	2.0		I	127	5.1	101	84-116	80-120

200-PW-2/200-PW-4 OU - Other Solid

QC-LCS #45593

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>09/27/03</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2317

7570-006

B17C34

DUPLICATE

SDG <u>7570</u>	Client/Case no <u>Hanford</u>	SDG <u>H2317</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>R308095-06</u>	Lab sample id <u>R308095-01</u>	Client sample id <u>B17C34</u>
Dept sample id <u>7570-006</u>	Dept sample id <u>7570-001</u>	Location/Matrix <u>200-PW-2/200-PW-4 Reten. SOLID</u>
	Received <u>08/19/03</u>	Collected/Weight <u>08/13/03 08:30 37.8 g</u>
% solids <u>100.0</u>	% solids <u>100.0</u>	Custody/SAF No <u>F03-012-004 F03-012</u>

ANALYTE	DUPLICATE	2σ ERR	MDA	RDL	QUALI-	ORIGINAL	2σ ERR	MDA	QUALI-	RPD	3σ	PROT
	pCi/g	(COUNT)	pCi/g	pCi/g	FIERS TEST		pCi/g	(COUNT)	pCi/g	FIERS	%	TOT
Tritium	5.90	1.8	2.7	400	H	7.02	1.9	2.8		17	64	
Carbon 14	2.16	1.7	2.8	50	U	0.222	1.7	2.9	U	-		
Nickel 63	0.159	1.4	2.3	30	U	-0.574	1.3	2.2	U	-		
Total Strontium	-0.082	0.093	0.21	1.0	U	-0.036	0.087	0.19	U	-		
Technetium 99	0.215	0.31	0.90	15	U	0.022	0.27	0.89	U	-		
Thorium 228	0.471	0.29	0.28			0.457	0.28	0.27		3	131	
Thorium 230	0.289	0.22	0.28	1.0		0.562	0.28	0.27		64	126	
Thorium 232	0.687	0.30	0.28	1.0		0.246	0.21	0.27	U	95	118	
Neptunium 237	0	0.11	0.16	1.0	UX	0	0.093	0.14	U	-		
Iodine 129	-2.16	1.5	3.4	2.0	U	0.229	1.1	2.5	U	-		

200-PW-2/200-PW-4 OU - Other Solid

QC-DUP#1 45595

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>09/27/03</u>

EBERLINE SERVICES / RICHMOND  
SAMPLE DELIVERY GROUP H2317

7570-001

B17C34

DATA SHEET

SDG <u>7570</u>	Client/Case no <u>Hanford</u>	SDG <u>H2317</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R308095-01</u>	Client sample id <u>B17C34</u>	
Dept sample id <u>7570-001</u>	Location/Matrix <u>200-PW-2/200-PW-4 Reten. SOLID</u>	
Received <u>08/19/03</u>	Collected/Weight <u>08/13/03 08:30</u> <u>37.8 g</u>	
% solids <u>100.0</u>	Custody/SAF No <u>F03-012-004</u> <u>F03-012</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	7.02	1.9	2.8	400		H
Carbon 14	14762-75-5	0.222	1.7	2.9	50	U	C
Nickel 63	13981-37-8	-0.574	1.3	2.2	30	U	NI_L
Total Strontium	SR-RAD	-0.036	0.087	0.19	1.0	U	SR
Technetium 99	14133-76-7	0.022	0.27	0.89	15	U	TC
Thorium 228	14274-82-9	0.457	0.28	0.27			TH
Thorium 230	14269-63-7	0.562	0.28	0.27	1.0		TH
Thorium 232	TH-232	0.246	0.21	0.27	1.0	U	TH
Neptunium 237	13994-20-2	0	0.093	0.14	1.0	U	NP
Iodine 129	15046-84-1	0.229	1.1	<u>2.5</u>	2.0	U	I

200-PW-2/200-PW-4 OU - Other Solid

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>09/27/03</u>

EBERLINE SERVICES / RICHMOND  
SAMPLE DELIVERY GROUP H2317

7570-002

B17C35

DATA SHEET

SDG <u>7570</u>	Client/Case no <u>Hanford</u>	SDG <u>H2317</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R308095-02</u>	Client sample id <u>B17C35</u>	
Dept sample id <u>7570-002</u>	Location/Matrix <u>200-PW-2/200-PW-4 Reten. SOLID</u>	
Received <u>08/19/03</u>	Collected/Weight <u>08/13/03 09:30 42.7 g</u>	
% solids <u>100.0</u>	Custody/SAF No <u>F03-012-004 F03-012</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	5.68	1.7	2.5	400		H
Carbon 14	14762-75-5	0.554	1.6	2.7	50	U	C
Nickel 63	13981-37-8	-0.608	1.3	2.3	30	U	NI_L
Total Strontium	SR-RAD	-0.079	0.085	0.20	1.0	U	SR
Technetium 99	14133-76-7	0.702	0.33	0.82	15	U	TC
Thorium 228	14274-82-9	0.589	0.30	0.28			TH
Thorium 230	14269-63-7	0.442	0.30	0.28	1.0		TH
Thorium 232	TH-232	0.662	0.30	0.28	1.0		TH
Neptunium 237	13994-20-2	0.055	0.11	0.16	1.0	U	NP
Iodine 129	15046-84-1	-0.419	0.96	<u>2.2</u>	2.0	U	I

200-PW-2/200-PW-4 OU - Other Solid

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>09/27/03</u>

EBERLINE SERVICES / RICHMOND  
SAMPLE DELIVERY GROUP H2317

7570-003

B17C36

DATA SHEET

SDG <u>7570</u>	Client/Case no <u>Hanford</u>	SDG <u>H2317</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R308095-03</u>	Client sample id <u>B17C36</u>	
Dept sample id <u>7570-003</u>	Location/Matrix <u>200-PW-2/200-PW-4 Reten. SOLID</u>	
Received <u>08/19/03</u>	Collected/Weight <u>08/13/03 10:10 26.1 g</u>	
% solids <u>100.0</u>	Custody/SAF No <u>F03-012-004 F03-012</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	3.94	1.6	2.4	400		H
Carbon 14	14762-75-5	0.984	1.6	2.6	50	U	C
Nickel 63	13981-37-8	-0.392	1.3	2.2	30	U	NI_L
Total Strontium	SR-RAD	0.801	0.12	0.12	1.0		SR
Technetium 99	14133-76-7	-0.073	0.26	0.91	15	U	TC
Thorium 228	14274-82-9	0.361	0.26	0.25			TH
Thorium 230	14269-63-7	0.361	0.26	0.25	1.0		TH
Thorium 232	TH-232	0.262	0.20	0.25	1.0		TH
Neptunium 237	13994-20-2	0	0.082	0.12	1.0	U	NP
Iodine 129	15046-84-1	-0.044	1.1	2.4	2.0	U	I

200-PW-2/200-PW-4 OU - Other Solid

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>09/27/03</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2317

Test NP Matrix SOLID  
SDG 7570  
Contact Melissa C. Mannion

LAB METHOD SUMMARY  
NEPTUNIUM IN SOIL  
ALPHA SPECTROSCOPY

Client Hanford  
Contract No. 630  
Contract SDG H2317

RESULTS

LAB	RAW	SUF-		Neptunium
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	237
Preparation batch 7078-037				
R308095-01		7570-001	B17C34	U
R308095-02		7570-002	B17C35	U
R308095-03		7570-003	B17C36	U
R308095-04		7570-004	LCS (QC ID=45593)	ok
R308095-05		7570-005	BLK (QC ID=45594)	U
R308095-06		7570-006	Duplicate (R308095-01)	- UX

Nominal values and limits from method RDLs (pCi/g) 1.0  
200-PW-2/200-PW-4 OU - Other Solid

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7078-037			2σ prep error 5.0 %		Reference Lab Notebook 7078 pg. 037										
R308095-01		B17C34	0.14	0.500			54					36	09/17/03	09/18	SS-061
R308095-02		B17C35	0.16	0.500			47					36	09/17/03	09/18	SS-051
R308095-03		B17C36	0.12	0.500			59					36	09/17/03	09/18	SS-052
R308095-04		LCS (QC ID=45593)	0.17	0.500			46						09/17/03	09/18	SS-053
R308095-05		BLK (QC ID=45594)	0.15	0.500			51						09/17/03	09/18	SS-055
R308095-06		Duplicate (R308095-01)	0.16	0.500			47					36	09/17/03	09/18	SS-056
		(QC ID=45595)													

Nominal values and limits from method 1.0 0.500 20-105 100 180

PROCEDURES	REFERENCE	NP237_LLE_PLATE_AEA
CP-060	Soil Preparation, rev 4	
CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2	
CP-930	Neptunium from Solids and Water by Extraction Chromatography, rev 0	
CP-008	Heavy Element Electroplating, rev 7	

AVERAGES ± 2 SD	MDA	0.15 ± 0.036
FOR 6 SAMPLES	YIELD	51 ± 10

**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H2317

**LAB METHOD SUMMARY**

THORIUM, ISOTOPIC IN SOIL  
ALPHA SPECTROSCOPY

Test TH Matrix SOLID  
SDG 7570  
Contact Melissa C. Mannion

Client Hanford  
Contract No. 630  
Contract SDG H2317

**RESULTS**

LAB RAW SUF-  
SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Thorium 230

Preparation batch 7078-037

R308095-01	7570-001	B17C34	0.562
R308095-02	7570-002	B17C35	0.442
R308095-03	7570-003	B17C36	0.361
R308095-04	7570-004	LCS (QC ID=45593)	ok
R308095-05	7570-005	BLK (QC ID=45594)	U
R308095-06	7570-006	Duplicate (R308095-01)	ok

Nominal values and limits from method RDLs (pCi/g) 1.0  
200-PW-2/200-PW-4 OU - Other Solid

**METHOD PERFORMANCE**

LAB RAW SUF- MAX MDA ALIQ PREP DILU- YIELD EFF COUNT FWHM DRIFT DAYS ANAL-  
SAMPLE ID TEST FIX CLIENT SAMPLE ID pCi/g g FAC TION % % min keV KeV HELD PREPARED YZED DETECTOR

Preparation batch 7078-037 2σ prep error 5.0 % Reference Lab Notebook 7078 pg. 037

R308095-01	B17C34	0.27	0.250	91	170	30	09/12/03	09/12	SS-057
R308095-02	B17C35	0.28	0.250	87	170	30	09/12/03	09/12	SS-058
R308095-03	B17C36	0.25	0.250	94	169	30	09/12/03	09/12	SS-060
R308095-04	LCS (QC ID=45593)	0.27	0.250	86	170		09/12/03	09/12	SS-061
R308095-05	BLK (QC ID=45594)	0.26	0.250	93	170		09/12/03	09/12	SS-062
R308095-06	Duplicate (R308095-01) (QC ID=45595)	0.28	0.250	84	170	30	09/12/03	09/12	SS-064

Nominal values and limits from method 1.0 0.250 20-105 150 180

PROCEDURES	REFERENCE	THISO_1E_PLATE_AEA
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-900	Thorium in Water and Dissolved Solid Samples by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD MDA 0.27 ± 0.023  
FOR 6 SAMPLES YIELD 89 ± 8

**METHOD SUMMARIES**

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**SUMMARY DATA SECTION**

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Lab id EBRLNE  
Protocol Hanford  
Version Ver 1.0  
Form DVD-LMS  
Version 3.06  
Report date 09/27/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2317

Test SR Matrix SOLID  
 SDG 7570  
 Contact Melissa C. Mannion

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOIL  
 BETA COUNTING

Client Hanford  
 Contract No. 630  
 Contract SDG H2317

RESULTS

LAB	RAW	SUF-		Total	
SAMPLE ID	TEST	FIX	PLANCHET	CLIENT SAMPLE ID	Strontium
Preparation batch 7078-037					
R308095-01			7570-001	B17C34	U
R308095-02			7570-002	B17C35	U
R308095-03			7570-003	B17C36	0.801
R308095-04			7570-004	LCS (QC ID=45593)	ok
R308095-05			7570-005	BLK (QC ID=45594)	U
R308095-06			7570-006	Duplicate (R308095-01)	- U

Nominal values and limits from method RDLs (pCi/g) 1.0  
 200-PW-2/200-PW-4 OU - Other Solid

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-			
SAMPLE ID	TEST	FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7078-037 2σ prep error 10.0 % Reference Lab Notebook 7078 pg. 037																
R308095-01			B17C34	0.19	1.00			97		100			30	09/12/03	09/12	GRB-220
R308095-02			B17C35	0.20	1.00			99		100			30	09/12/03	09/12	GRB-221
R308095-03			B17C36	0.12	1.00			100		200			30	09/12/03	09/12	GRB-220
R308095-04			LCS (QC ID=45593)	0.26	1.00			78		100				09/12/03	09/12	GRB-222
R308095-05			BLK (QC ID=45594)	0.25	1.00			79		100				09/12/03	09/12	GRB-223
R308095-06			Duplicate (R308095-01)	0.21	1.00			95		100			30	09/12/03	09/12	GRB-224
			(QC ID=45595)													

Nominal values and limits from method 1.0 1.00 30-105 100 180

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
CP-060	Soil Preparation, rev 4	
CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2	
CP-381	Strontium in Solids, rev 1	

AVERAGES ± 2 SD	MDA	0.20 ± 0.10
FOR 6 SAMPLES	YIELD	91 ± 20

Lab id EBRLNE  
 Protocol Hanford  
 Version Ver 1.0  
 Form DVD-LMS  
 Version 3.06  
 Report date 09/27/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2317

Test IC Matrix SOLID  
 SDG 7570  
 Contact Melissa C. Mannion

LAB METHOD SUMMARY  
 TECHNETIUM 99 IN SOIL  
 BETA COUNTING

Client Hanford  
 Contract No. 630  
 Contract SDG H2317

RESULTS

LAB	RAW	SUF-		Technetium
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	99
Preparation batch 7078-037				
R308095-01		7570-001	B17C34	U
R308095-02		7570-002	B17C35	U
R308095-03		7570-003	B17C36	U
R308095-04		7570-004	LCS (QC ID=45593)	ok
R308095-05		7570-005	BLK (QC ID=45594)	<u>0.609</u>
R308095-06		7570-006	Duplicate (R308095-01)	- U

Nominal values and limits from method RDLs (pCi/g) 15  
 200-PW-2/200-PW-4 OU - Other Solid

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD PREPARED	YZED DETECTOR
Preparation batch 7078-037 2σ prep error 10.0 % Reference Lab Notebook 7078 pg. 037													
R308095-01		B17C34	0.89	1.02			62		50		40	09/16/03 09/22	GRB-229
R308095-02		B17C35	0.82	1.02			64		50		41	09/16/03 09/23	GRB-230
R308095-03		B17C36	0.91	1.01			58		50		41	09/16/03 09/23	GRB-232
R308095-04		LCS (QC ID=45593)	0.35	1.00			100		100			09/16/03 09/23	GRB-217
R308095-05		BLK (QC ID=45594)	0.34	1.00			102		100			09/16/03 09/23	GRB-218
R308095-06		Duplicate (R308095-01) (QC ID=45595)	0.90	1.02			58		50		42	09/16/03 09/24	GRB-230

Nominal values and limits from method 15 1.00 20-105 50 180

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE  
 Protocol Hanford  
 Version Ver 1.0  
 Form DVD-LMS  
 Version 3.06  
 Report date 09/27/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2317

Test IC Matrix SOLID

SDG 7570

Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

TECHNETIUM 99 IN SOIL

BETA COUNTING

Client Hanford

Contract No. 630

Contract SDG H2317

PROCEDURES	REFERENCE	TC99_TR_SEP_LSC
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-021	Preparation of Tc-99m Tracer, rev 2
	CP-002	Q.C. Preparation, rev 4
	CP-003	Addition of Carriers and Tracers, rev 5
	CP-542	Technetium-99 Purification (Soil) by Extraction Chromatography, rev 2
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD	MDA	<u>0.70</u> ± <u>0.56</u>
FOR 6 SAMPLES	YIELD	<u>74</u> ± <u>42</u>

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

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Version 3.06

Report date 09/27/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2317

Test 1 Matrix SOLID  
 SDG 7570  
 Contact Melissa C. Mannion

LAB METHOD SUMMARY

IODINE 129 IN SOIL  
 GAMMA SPECTROSCOPY

Client Hanford  
 Contract No. 630  
 Contract SDG H2317

RESULTS

LAB	RAW	SUF-	CLIENT SAMPLE ID	Iodine 129
SAMPLE ID	TEST FIX	PLANCHET		
Preparation batch 7078-037				
R308095-01		7570-001	B17C34	U
R308095-02		7570-002	B17C35	U
R308095-03		7570-003	B17C36	U
R308095-04		7570-004	LCS (QC ID=45593)	ok
R308095-05		7570-005	BLK (QC ID=45594)	U
R308095-06		7570-006	Duplicate (R308095-01)	- U
Nominal values and limits from method			RDLs (pCi/g)	2.0
200-PW-2/200-PW-4 OU - Other Solid				

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7078-037 2σ prep error 10.0 % Reference Lab Notebook 7078 pg. 037															
R308095-01		B17C34	<u>2.5</u>	1.00			52		1074			42	09/20/03	09/24	XSPEC-016
R308095-02		B17C35	<u>2.2</u>	1.01			48		414			43	09/20/03	09/25	XSPEC-004
R308095-03		B17C36	<u>2.4</u>	1.00			58		712			43	09/20/03	09/25	XSPEC-016
R308095-04		LCS (QC ID=45593)	<u>2.9</u>	1.00			93		620				09/20/03	09/26	XSPEC-016
R308095-05		BLK (QC ID=45594)	<u>0.83</u>	1.00			91		858				09/20/03	09/26	XSPEC-004
R308095-06		Duplicate (R308095-01)	<u>3.4</u>	1.00			52		816			44	09/20/03	09/26	XSPEC-016
			(QC ID=45595)												
Nominal values and limits from method			2.0	1.00			20-105		300			180			

PROCEDURES REFERENCE I129\_SEP\_LEPS\_GS  
 CP-024 Iodine-129, Sample Dissolution, rev 3  
 CP-530 Iodine-129 Purification, rev 0

AVERAGES ± 2 SD MDA 2.4 ± 1.7  
 FOR 6 SAMPLES YIELD 66 ± 41

Lab id EBRLNE  
 Protocol Hanford  
 Version Ver 1.0  
 Form DVD-LMS  
 Version 3.06  
 Report date 09/27/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2317

Test C Matrix SOLID  
SDG 7570  
Contact Melissa C. Mannion

LAB METHOD SUMMARY  
CARBON 14 IN SOIL  
LIQUID SCINTILLATION COUNTING

Client Hanford  
Contract No. 630  
Contract SDG H2317

RESULTS

LAB	RAW	SUF-		
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Carbon 14
Preparation batch 7078-037				
R308095-01		7570-001	B17C34	U
R308095-02		7570-002	B17C35	U
R308095-03		7570-003	B17C36	U
R308095-04		7570-004	LCS (QC ID=45593)	ok
R308095-05		7570-005	BLK (QC ID=45594)	U
R308095-06		7570-006	Duplicate (R308095-01)	- U

Nominal values and limits from method RDLs (pCi/g) 50  
200-PW-2/200-PW-4 OU - Other Solid

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7078-037 2σ prep error 10.0 % Reference Lab Notebook 7078 pg. 037															
R308095-01		B17C34	2.9	0.366			100					33	09/15/03	09/15	LSC-004
R308095-02		B17C35	2.7	0.396			100					34	09/15/03	09/16	LSC-004
R308095-03		B17C36	2.6	0.410			100					34	09/15/03	09/16	LSC-004
R308095-04		LCS (QC ID=45593)	9.3	0.366			100			11			09/15/03	09/16	LSC-004
R308095-05		BLK (QC ID=45594)	3.0	0.366			100						09/15/03	09/15	LSC-004
R308095-06		Duplicate (R308095-01) (QC ID=45595)	2.8	0.383			100					34	09/15/03	09/16	LSC-004

Nominal values and limits from method 50 0.366 50 180

PROCEDURES REFERENCE C14\_COX\_LSC  
CP-251 Tritium/Carbon-14 Oxidation, rev 5

AVERAGES ± 2 SD MDA 3.9 ± 5.3  
FOR 6 SAMPLES YIELD 100 ± 0

Lab id EBRLE  
Protocol Hanford  
Version Ver 1.0  
Form DVD-LMS  
Version 3.06  
Report date 09/27/03

**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H2317

Test H Matrix SOLID  
 SDG 7570  
 Contact Melissa C. Mannion

**LAB METHOD SUMMARY**  
 TRITIUM IN SOIL  
 LIQUID SCINTILLATION COUNTING

Client Hanford  
 Contract No. 630  
 Contract SDG H2317

**RESULTS**

LAB	RAW	SUF-			
SAMPLE ID	TEST	FIX	PLANCHET	CLIENT SAMPLE ID	Tritium
Preparation batch 7078-037					
R308095-01			7570-001	B17C34	7.02
R308095-02			7570-002	B17C35	5.68
R308095-03			7570-003	B17C36	3.94
R308095-04			7570-004	LCS (QC ID=45593)	ok
R308095-05			7570-005	BLK (QC ID=45594)	U
R308095-06			7570-006	Duplicate (R308095-01)	ok

Nominal values and limits from method RDLs (pCi/g) 400  
 200-PW-2/200-PW-4 OU - Other Solid

**METHOD PERFORMANCE**

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-				
SAMPLE ID	TEST	FIX	CLIENT	SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7078-037 2σ prep error 10.0 % Reference Lab Notebook 7078 pg. 037																	
R308095-01			B17C34		2.8	0.366			100		120			35	09/15/03	09/17	LSC-005
R308095-02			B17C35		2.5	0.396			100		120			36	09/15/03	09/18	LSC-005
R308095-03			B17C36		2.4	0.410			100		120			36	09/15/03	09/18	LSC-005
R308095-04			LCS (QC ID=45593)		2.6	0.366			100		120				09/15/03	09/18	LSC-005
R308095-05			BLK (QC ID=45594)		2.7	0.366			100		120				09/15/03	09/17	LSC-005
R308095-06			Duplicate (R308095-01)		2.7	0.383			100		120			36	09/15/03	09/18	LSC-005
			(QC ID=45595)														

Nominal values and limits from method 400 0.366 25 180

PROCEDURES REFERENCE TRITIUM\_COX\_LSC  
 CP-251 Tritium/Carbon-14 Oxidation, rev 5

AVERAGES ± 2 SD MDA 2.6 ± 0.29  
 FOR 6 SAMPLES YIELD 100 ± 0

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2317

Client Hanford

Contract No. 630

Contract SDG H2317

Test NI L Matrix SOLID  
 SDG 7570  
 Contact Melissa C. Mannion

LAB METHOD SUMMARY

NICKEL 63 IN SOIL

LIQUID SCINTILLATION COUNTING

RESULTS

LAB RAW SUF-  
 SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Nickel 63

Preparation batch 7078-037

R308095-01	7570-001	B17C34	U
R308095-02	7570-002	B17C35	U
R308095-03	7570-003	B17C36	U
R308095-04	7570-004	LCS (QC ID=45593)	ok
R308095-05	7570-005	BLK (QC ID=45594)	U
R308095-06	7570-006	Duplicate (R308095-01)	- U

Nominal values and limits from method RDLs (pCi/g) 30  
 200-PW-2/200-PW-4 OU - Other solid

METHOD PERFORMANCE

LAB RAW SUF- MDA ALIQ PREP DILU- YIELD EFF COUNT FWHM DRIFT DAYS ANAL-  
 SAMPLE ID TEST FIX CLIENT SAMPLE ID pCi/g g FAC TION % % min keV KeV HELD PREPARED YZED DETECTOR

Preparation batch 7078-037 2σ prep error 10.0 % Reference Lab Notebook 7078 pg. 037

R308095-01	B17C34	2.2	0.500	90	100	35	09/16/03	09/17	LSC-004
R308095-02	B17C35	2.3	0.500	90	100	35	09/16/03	09/17	LSC-004
R308095-03	B17C36	2.2	0.500	89	100	35	09/16/03	09/17	LSC-004
R308095-04	LCS (QC ID=45593)	2.5	0.500	96	66		09/16/03	09/17	LSC-004
R308095-05	BLK (QC ID=45594)	2.1	0.500	93	100		09/16/03	09/17	LSC-004
R308095-06	Duplicate (R308095-01) (QC ID=45595)	2.3	0.500	88	100	35	09/16/03	09/17	LSC-004

Nominal values and limits from method 30 0.500 30-105 50 180

PROCEDURES REFERENCE NI63\_LSC  
 CP-060 Soil Preparation, rev 4  
 CP-071 Soil Dissolution, > 1.0g Aliquot, rev 2  
 CP-280 Nickel-63 Purification, rev 0

AVERAGES ± 2 SD MDA 2.3 ± 0.27  
 FOR 6 SAMPLES YIELD 91 ± 6

METHOD SUMMARIES

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SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- \* LAB SAMPLE ID is the lab's primary identification for a sample.
- \* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- \* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- \* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

- \* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

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PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- \* The preparation batches are shown in the same order as the Method Summary Reports are printed.
- \* Only analyses of planchets relevant to the SDG are included.
- \* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- \* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- \* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- \* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- \* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- \* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- \* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- \* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- \* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- \* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

- \* ERRORS can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- \* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- \* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

- U The RESULT is less than the MDA (Minimum Detectable Activity).

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DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H Similar to 'L' except the recovery was high.

P The RESULT is 'preliminary'.

X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

\* An MDA is underlined if it is bigger than its RDL.

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DATA SHEET

- \* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.
- \* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- \* When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- \* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- \* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- \* REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- \* The first, computed limits for the recovery reflect:
  1. The error of RESULT, including that introduced by rounding the result prior to printing.
 

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.
  2. The error of ADDED.
  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- \* The second limits are protocol defined upper and lower QC limits for the recovery.
- \* The recovery is underlined if it is outside either of these ranges.

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DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

- \* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- \* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTS divided by their average expressed as a percent.

If both RESULTS are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

- \* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTS prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTS. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- \* The second limit for the RPD is the larger of:
  1. A fixed percentage specified in the protocol.

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DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

- \* The RPD is underlined if it is greater than either limit.
- \* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

- \* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

- \* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- \* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- \* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

- \* The first, computed limits for the recovery reflect:

1. The errors of the two RESULTS, including those introduced by rounding them prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

2. The error of ADDED.

3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

- \* The second limits are protocol defined upper and lower QC limits

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MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

- \* The recovery is underlined (out of spec) if it is outside either of these ranges.

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METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

- \* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

- \* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

- \* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- \* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- \* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

- \* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
  - \* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.
- MDAs are underlined if greater than the printed RDL.
- \* Aliquots are underlined if less than the nominal value specified for the method.
  - \* Preparation factors are underlined if greater than the nominal value specified for the method.
  - \* Dilution factors are underlined if greater than the nominal value specified for the method.
  - \* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
  - \* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
  - \* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

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- \* Count times are underlined if less than the nominal value specified for the method.
- \* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- \* Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- \* Days Held are underlined if greater than the holding time specified in the protocol.
- \* Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1+3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

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METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

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FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-012-004	Page 2 of 2											
Collector Johansen/Popo/Pfister	Company Contact Steve Treat	Telephone No. 373-5869	Project Coordinator Trent, SJ		Price Code 9N	Data Turnaround 45 Days												
Project Designation 200-PW-2/200-PW-4 OU - Other Solid	Sampling Location 200-PW-2/200-PW-4 Retention Basin	112317 (7570)		SAF No. F03-012	Air Quality <input type="checkbox"/>													
Ice Chest No. ERC 01-017	Field Logbook No. HNF-336-1	COA 117504ES10	Method of Shipment Federal Express															
Shipped To EBERLINE SERVICES (Formerly TMA)	Offsite Property No. A030 329	Bill of Lading/Air Bill No. SEFOSPC																
POSSIBLE SAMPLE HAZARDS/REMARKS N/A Potentially Radioactive tie to B17C94 Special Handling and/or Storage N/A				Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None									
				Type of Container	uG	uG	uG	uG	uG									
				No. of Container(s)	1	1	1	1	1									
				Volume	60mL	60mL	60mL	60mL	60mL									
SAMPLE ANALYSIS				Pesticides - 8081	PCBs - 8082	Chloro-Herbicides - EPAB151	NO2/NO3 - 353.2; O3 & Gases - 413.1	See item (1) in Special Instructions.										
Sample No.	Matrix *	Sample Date	Sample Time															
B17C34	OTHER SOLID	8-13-03	0830															
B17C35	OTHER SOLID	8-13-03	0930															
B17C36	OTHER SOLID	8-13-03	1010															
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *						
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time	N/A (1) Technetium-99; Strontium-89,90 - Total Sr; Isotopic Thorium (Thorium-232); Carbon-14; Iodine-129; Nickel-63; Neptunium-237; Tritium - H3  Personnel not available to relinquish samples from the 3728 Ref # 3A on 8/18/03				S-Soil SQ-Solid SL-Slag W-Water O-Oil A-Air DS-Dry Solids DL-Dry Liquids T-Tissue WL-Wipe L-Liquid V-Vegetation X-Other								
M. Johnson		8-13-03	MO-020 Ref # 1		8-13-03													
M. Johnson		8-14-03	M. Johnson Ref # 1		8-14-03													
M. Johnson		8-14-03	K. Felder Ref # 1		8-14-03													
K. Felder		8-18-03	K. Felder Ref # 1		8-18-03													
3A 3728		8-18-03	K. Felder Ref # 1		8-18-03													
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time													
K. Felder		8-18-03	K. Felder		8-18-03													
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time													
K. Felder		8-18-03	K. Felder		8-18-03													
LABORATORY SECTION		Received By	Title		Date/Time													
K. Felder		J. Johnson	8/19/03															
FINAL SAMPLE DISPOSITION		Disposal Method	Disposed By		Date/Time													



**RICHMOND, CA LABORATORY**  
**SAMPLE RECEIPT CHECKLIST**

Client: Floor Hazard Date/Time received 8/19/03 9:30 AM

CoC No. E03-012-004

Container I.D. No. ERC 01-017 Requested TAT (Days) 45 P.O. Received Yes [ ] No [ ]

**INSPECTION**

- 1. Custody seals on shipping container intact? Yes [  ] No [ ] N/A [ ]
- 2. Custody seals on shipping container dated & signed? Yes [  ] No [ ] N/A [ ]
- 3. Custody seals on sample containers intact? Yes [  ] No [ ] N/A [ ]
- 4. Custody seals on sample containers dated & signed? Yes [  ] No [ ] N/A [ ]
- 5. Packing material is: Wet [ ] Dry [  ]
- 6. Number of samples in shipping container: 3
- 7. Number of containers per sample: 1 (Or see CoC \_\_\_\_\_)
- 8. Samples are in correct container Yes [  ] No [ ]
- 9. Paperwork agrees with samples? Yes [  ] No [ ]
- 10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [  ]
- 11. Samples are: In good condition [  ] Leaking [ ] Broken Container [ ] Missing [ ]
- 12. Samples are: Preserved [ ] Not preserved [ ] pH \_\_\_\_\_ Preservative \_\_\_\_\_
- 13. Describe any anomalies: \_\_\_\_\_

14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date \_\_\_\_\_

15. Received by [Signature] Date: 8/19/03 Time: 9:30 AM

Customer Sample No.	cpm	mR/hr	wipe	Customer Sample No.	cpm	mR/hr	wipe

Ion Chamber Ser. No. \_\_\_\_\_ Calibration date \_\_\_\_\_

Alpha Meter Ser. No. \_\_\_\_\_ Calibration date \_\_\_\_\_

Beta/Gamma Meter Ser. No. \_\_\_\_\_ Calibration date \_\_\_\_\_



15 September 2003

Mr. Steve Trent  
Fluor Hanford Inc.  
825 Jadwin Ave.  
Richland, WA 99352

**Subject: Contract No. 630  
Analytical Data Package**



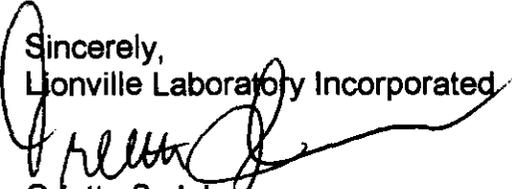
Dear Mr. Trent:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0308L226
SDG #	H2317
SAF #	F03-012
Date Received	8-19-03
# Samples	3
Matrix	Other Solid
Volatiles	
Semivolatiles	
Pest/PCB	X
DRO/GRO/KRO	
Herbicides	X
GC Alcohol	
Metals	X
Inorganics	X

The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,  
Lionville Laboratory Incorporated

  
Orlette S. Johnson  
Project Manager

Lionville Laboratory, Inc.  
PEST/PCB ANALYTICAL DATA PACKAGE FOR  
TNUHANFORD F03-012 H2317

DATE RECEIVED: 08/19/03

LVL LOT # :0308L226

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B17C34	001	SO	03LE1014	08/13/03	08/20/03	09/10/03
B17C35	002	SO	03LE1014	08/13/03	08/20/03	09/10/03
B17C36	003	SO	03LE1014	08/13/03	08/20/03	09/10/03

LAB QC:

PBLKCU	MB1	S	03LE1014	N/A	08/20/03	09/10/03
PBLKCU	MB1 BS	S	03LE1014	N/A	08/20/03	09/10/03
PBLKCU	MB1 BSD	S	03LE1014	N/A	08/20/03	09/10/03





### Analytical Report

Client: TNU-HANFORD F03-012  
LVL #: 0308L226  
SDG/SAF #: H2317/F03-012

W.O. #: 11343-606-001-9999-00  
Date Received: 08-19-03

### PESTICIDE

The set of samples consisted of three (3) solid samples collected on 08-13-03.

The samples and their associated QC samples were extracted on 08-20-03 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 09-10-03. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8081A.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. The method blank was below the reporting limits for all target compounds.
4. Five (5) of twelve (12) surrogate recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
6. All blank spike recoveries were within acceptance criteria.
7. Due to insufficient sample volume, matrix spike QC could not be performed on any samples in this data set. However, blank spike QC were performed with these samples to demonstrate that systems were in control.
8. All initial calibrations associated with this data set were within acceptance criteria.
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

  
Iain Daniels  
Laboratory Manager  
Lionville Laboratory Incorporated

9/16/03  
Date

pefr:\group\data\pest\tnu hanford\08L-226.pes

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 11 pages.

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 03GC341

Initiator: byrce Sautero  
 Date: 9/11/03  
 Client: for TNU  
2/11/03

Batch: 0309L226  
 Samples: 002, 003  
 Method: SW846/MCAWW/CLPI

Parameter: 0608H  
 Matrix: solid  
 Prep Batch: 03LE1014

1. Reason for SDR

a. COC Discrepancy  Tech Profile Error  Client Request  Sampler Error on C-O-C  
 Transcription Error  Wrong Test Code  Other \_\_\_\_\_

b. General Discrepancy

Missing Sample/Extract  Container Broken  Wrong Sample Pulled  Label ID's Illegible  
 Hold Time Exceeded  Insufficient Sample  Preservation Wrong  Received Past Hold  
 Improper Bottle Type  Not Amenable to Analysis

Note\*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: \_\_\_\_\_

c. Problem (Include all relevant specific results; attach data if necessary)

① High surrogate recoveries in samples 002 and 003. Samples are clean.

2. Known or Probable Causes(s)

① Samples may have been double-surrugated or concentrated in transfer vial

3. Discussion and Proposed Action

Other Description: none

- Re-log
- Entire Batch
- Following Samples: \_\_\_\_\_
- Re-leach
- Re-extract
- Re-digest
- Revise EDD
- Change Test Code to \_\_\_\_\_
- Place On/Take Off Hold (circle)

No significant impact to sample data - samples are still non-detect for all target compounds of interest. 7/8/03 9/12/03

*[Signature]* 9/11/03

4. Project Manager Instructions...signature/date: \_\_\_\_\_

- Concur with Proposed Action
- Disagree with Proposed Action; See Instruction
- Include in Case Narrative
- Client Contacted:
- Date/Person \_\_\_\_\_
- Add
- Cancel

5. Final Action...signature/date: [Signature] 9/12/03

Other Explanation:

- Verified re-[log][leach][extract][digest][analysis] (circle)
- Included in Case Narrative
- Hard Copy COC Revised
- Electronic COC Revised
- EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

- Route Distribution of Completed SDR
- X Initiator
  - X Lab General Manager: M. Taylor
  - X Project Mgr: Stone/Johnson/Haslett
  - X Technical Mgr: Wesson/Daniels
  - X QA (file)
  - Data Management: Feldman
  - Sample Prep: Beegle/Kiger

- Route Distribution of Completed SDR
- Metals: Beegle
  - Inorganic: Perrone
  - GC/LC: Kiger
  - MS: Rychlak/Layman
  - Log-in: Melnic
  - Admin: Soos
  - Other: \_\_\_\_\_

2F  
SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: Lionville Labs. Inc.

Contract: 1343-06-01

Case No.: TNUHANFORD F03-012 H2317

RFW Lot No.: 0308L226

	CLIENT SAMPLE NO.	S1 ( )#	OTHER
01	B17C34	100	105
02	B17C35	145 *	200 *
03	B17C36	230 *	270 *
04	PBLKCULE1014-MB1	115	130 *
05	PBLKCULE1014-MB1 BS	90	110
06	PBLKCULE1014-MB1 BSD	105	115

ADVISORY  
QC LIMITS  
( 28-118)  
( 38-122)

S1 ( ) = Tetrachloro-m-xylene  
S2 ( ) = Decachlorobiphenyl

# Column to be used to flag recovery values  
\* Values outside of QC limits  
D Surrogates diluted out

A



## GLOSSARY OF PESTICIDE/PCB DATA

### DATA QUALIFIERS

- U** = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J** = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B** = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E** = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I** = Interference.
- .I** = Indicates an interference on one analytical column only. Result is reported from remaining analytical column.

### ABBREVIATIONS

- BS** = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD** = Indicates blank spike duplicate.
- MS** = Indicates matrix spike.
- MSD** = Indicates matrix spike duplicate.
- DL** = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA** = Not Applicable.
- DF** = Dilution Factor.
- NR** = Not Required.

SP = Indicates Spiked Compound.



### GLOSSARY OF PESTICIDE/PCB DATA

- P** = This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
- D** = This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- C** = This flag applies to a compound that has been confirmed by GC/MS.

Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List

Report Date: 09/11/03 11:07

RFW Batch Number: 0308L226

Client: TNUHANFORD F03-012 H2317 Work Order: 11343606001 Page: 1

	Cust ID:	B17C34	B17C35	B17C36	PBLKCU	PBLKCU BS	PBLKCU BSD
Sample Information	RFW#:	001	002	003	03LE1014-MB1	03LE1014-MB1	03LE1014-MB1
	Matrix:	SOLID	SOLID	SOLID	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	100 %	145 * %	230 * %	115 %	90 %	105 %
	Decachlorobiphenyl	105 %	200 * %	270 * %	130 * %	110 %	115 %
		-----fl-----	-----fl-----	-----fl-----	-----fl-----	-----fl-----	-----fl-----
Alpha-BHC		1.7 U					
Beta-BHC		1.7 U					
Delta-BHC		1.7 U					
gamma-BHC (Lindane)		1.7 U	1.7 U	1.7 U	1.7 U	80 %	85 %
Heptachlor		1.7 U	1.7 U	1.7 U	1.7 U	85 %	95 %
Aldrin		1.7 U	1.7 U	1.7 U	1.7 U	85 %	95 %
Heptachlor epoxide		1.7 U					
Endosulfan I		1.7 U					
Dieldrin		3.3 U	3.3 U	3.3 U	3.3 U	90 %	100 %
4,4'-DDE		3.3 U					
Endrin		3.3 U	3.3 U	3.3 U	3.3 U	105 %	115 %
Endosulfan II		3.3 U					
4,4'-DDD		3.3 U					
Endosulfan sulfate		3.3 U					
4,4'-DDT		3.3 U	3.3 U	3.3 U	3.3 U	85 %	95 %
Methoxychlor		17 U					
Endrin ketone		3.3 U					
Endrin aldehyde		3.3 U					
alpha-Chlordane		1.7 U					
gamma-Chlordane		1.7 U					
Toxaphene		170 U					

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.  
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC

*709/10/03*



<b>FH-Central Plateau Project</b>		<b>CHAIN OF CUSTODY / SAMPLE DE GRADATION</b>		<b>Project Coordinator</b> TRENT, SJ		<b>Price Code</b> 9N		<b>Data Turnaround</b> 45 Days	
<b>Collector</b> Johansen/Pope/Pfister		<b>Company Contact</b> Steve Trent		<b>Telephone No.</b> 373-5869		<b>SAF No.</b> F03-012		<b>Air Quality</b> <input type="checkbox"/>	
<b>Project Designation</b> 200-PW-2/200-PW-4 OU - Other Solid		<b>Sampling Location</b> 200-PW-2/200-PW-4 Retention Basin		<b>Field Logbook No.</b> HNF-336-1		<b>COA</b> 117504ES10		<b>Method of Shipment</b> Federal Express	
<b>Ice Chest No.</b> ERC 01-037		<b>Offsite Property No.</b> A030 342		<b>Shipped To</b> EBERLINE SERVICES (Formerly LMA) Recra		<b>Bill of Lading/Air Bill No.</b> SEE OPRC			

<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> N/A Potentially Radioactive FTests B17C44 Special Handling and/or Storage N/A	<b>Preservation</b>	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None								
	<b>Type of Container</b>	2G	2G	2G	2G	2G								
	<b>No. of Container(s)</b>	1	1	1	1	1								
	<b>Volume</b>	60mL	60mL	60mL	60mL	60mL								

<b>SAMPLE ANALYSIS</b>	Pesticides - 8081	PCPs - 8082	Chloro-Herbicides - EPA8151	NO2/NO3 - 353.1; Oil & Grease - 413.1	See Item (1) in Special Instructions.									
------------------------	-------------------	-------------	-----------------------------	---------------------------------------	---------------------------------------	--	--	--	--	--	--	--	--	--

Sample No.	Matrix *	Sample Date	Sample Time											
B17C34	OTHER SOLID	8-13-03	0830	X		X	X							
B17C35	OTHER SOLID	8-13-03	0930	X		X	X							
B17C36	OTHER SOLID	8-13-03	1010	X		X	X							

<b>CHAIN OF POSSESSION</b>		<b>Sign/Print Names</b>		<b>SPECIAL INSTRUCTIONS</b>		<b>Matrix *</b> S=Soil SE=Soilment SO=Solid SL=Sedg W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Time WT=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From M. Johansen Date/Time 8-13-03 1200	Received By/Stored In M. O'Connell Date/Time 8-13-03 1200	N/A				
Relinquished By/Removed From M. O'Connell Date/Time 8-14-03 0830	Received By/Stored In M. Johansen Date/Time 8-14-03 0830	(4) Technetium-99, Strontium-89,90 - Total Sr, Isotopic Thorium (Thorium-232), Carbon-14, Iodine-129, Nickel-63, Neptunium-237, Tritium-3H - MJS 8-13-03				
Relinquished By/Removed From M. Johansen Date/Time 8-14-03 0900	Received By/Stored In Ref 3A Date/Time 8-14-03 0900	Personnel not available to Relinquish samples from 3728 Ref # 3A on 8/18/03				
Relinquished By/Removed From 3A 3728 Date/Time 8-18-03 1000	Received By/Stored In R. F. Miller Date/Time 8-18-03 1000					
Relinquished By/Removed From R. F. Miller Date/Time 8-18-03 1000	Received By/Stored In Fed Ex Date/Time					

<b>LABORATORY SECTION</b>	Received By	Date/Time
<b>FINAL SAMPLE DISPOSITION</b>	Disposal Method	Disposed By

<b>FH-Central Plateau Project</b>		<b>CHAIN OF CUSTODY</b>		<b>Project Coordinator</b> TRENT, SJ		<b>Price Code</b> 9N	<b>Data Turnaround</b> 45 Days
<b>Collector</b> Johansen/Pope/Pfister		<b>Company Contact</b> Steve Trent		<b>Telephone No.</b> 373-5869		<b>Air Quality</b> <input type="checkbox"/>	
<b>Project Designation</b> 200-PW-2/200-PW-4 OU - Other Solid		<b>Sampling Location</b> 200-PW-2/200-PW-4 Retention Basin		<b>SAF No.</b> F03-012			
<b>Ice Chest No.</b> ERC 01-037		<b>Field Logbook No.</b> HNF-336-1		<b>COA</b> 117504ES10		<b>Method of Shipment</b> Federal Express	
<b>Shipped To</b> EMERLINE SERVICES (Formerly TMA) Recra		<b>Offsite Property No.</b> A030 342		<b>Bill of Lading/Air Bill No.</b> SEE OSCP			

<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> N/A Potentially Radioactive Tests B17C44 <b>Special Handling and/or Storage</b> N/A	<b>Preservation</b>	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None
	<b>Type of Container</b>	aG	aG	aG	aG	aG
	<b>No. of Container(s)</b>	1	1	1	1	1
	<b>Volume</b>	60mL	60mL	60mL	60mL	60mL

<b>SAMPLE ANALYSIS</b>	Pesticides - 8081	PCPs - 8082	Chloro-Herbicides - EPA8151	NO2/NO3 - 353.2; Oil & Grease - 413.1	See Item (1) in Special Instructions.
------------------------	-------------------	-------------	-----------------------------	---------------------------------------	---------------------------------------

Sample No.	Matrix *	Sample Date	Sample Time								
B17C34	OTHER SOLID	8-13-03	0830	X		X	X				
B17C35	OTHER SOLID	8-13-03	0930	X		X	X				
B17C36	OTHER SOLID	8-13-03	1010	X		X	X				

<b>CHAIN OF POSSESSION</b>		<b>Sign/Print Names</b>		<b>SPECIAL INSTRUCTIONS</b>				<b>Matrix *</b>
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time	N/A				S=Soil SE=Soil/Ext SO=Soil S=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Time WY=Wipe L=Liquid V=Vegetation X=Other
Max Hansen	8-13-03 1200	MO-026 Ref #1	8-13-03 1200	(1) Technetium-99, Strontium-89,90 - Total Sr; Isotopic Thorium (Thorium-232); Carbon-14; Iodine-129; Nickel-63; Neptunium-237; Tritium-3H - TMS 8-13-03				
MO-026 Ref #1	8-14-03 0830	Max Hansen Ref #1	8-14-03 0830	Personnel not available to Relinquish samples from 3728 Ref # 3A on 8/18/03				
Max Hansen	8-14-03 0900	Ref 3A	8-14-03 0900					
3A 3728	8-18-03 1000	R. F. Hill	8-18-03 1000					
R. F. Hill	8-18-03 1000	Fed Ex						
Dea Ex	8-19-03/10:35	J. Smith	8-19-03/10:35					

<b>LABORATORY SECTION</b>	Received By	Date/Time
<b>FINAL SAMPLE DISPOSITION</b>	Disposal Method	Disposed By
		Date/Time

10

# LIONVILLE LABORATORY INCORPORATED

## SAMPLE RECEIPT CHECKLIST

CLIENT: TNU Hanford

Purchase Order/Project:

DATE: 8-19-03

SAF# / SOW# / Release #: F03-012

Laboratory SDG #: 0308L226

**NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION**

- |  |   |                             |   |  |
|--|---|-----------------------------|---|--|
| 1. Custody seals on coolers or shipping container intact, signed and dated?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 2. Outside of coolers or shipping containers are free from damage?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 3. Airbill # recorded?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 5. Sample containers are intact?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 6. Custody seals on sample containers intact, signed and dated?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 7. All samples on coc received?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 8. All sample label information matches coc?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?)   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 10. Shipment meets LVI Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 11. Where applicable, bar code labels are affixed to coc?  | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 12. coc signed and dated?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 13. coc will be faxed or emailed to client?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date)   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |

Cooler # / temp (°C) and Comments:

# ERC 01-037 / 5.6°

Laboratory Sample Custodian:

*D. Smith*

Laboratory Project Manager:

Lionville Laboratory, Inc.  
HBGX ANALYTICAL DATA PACKAGE FOR  
TNUHANFORD F03-012 H2317

DATE RECEIVED: 08/19/03

LVL LOT # :0308L226

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B17C34	001	SO	03LE1012	08/13/03	08/20/03	08/29/03
B17C35	002	SO	03LE1012	08/13/03	08/20/03	08/28/03
B17C36	003	SO	03LE1012	08/13/03	08/20/03	08/28/03

LAB QC:

PBLKCN	MB1	S	03LE1012	N/A	08/20/03	08/21/03
PBLKCN	MB1 BS	S	03LE1012	N/A	08/20/03	08/21/03
PBLKCN	MB1 BSD	S	03LE1012	N/A	08/20/03	08/21/03





## Analytical Report

Client: TNU HANFORD F03-012  
LVL#: 0308L226  
SDG/SAF#: H2317/F03-012

W.O.#: 11343-606-001-9999-00  
Date Received: 08-19-03

### HERBICIDE

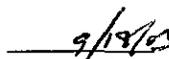
The set of samples consisted of three (3) solid samples collected on 08-13-03.

The samples and their associated QC samples were extracted on 08-20-03 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 08-21,28,29-03. The extraction and analysis procedure was based on method 8151A.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LVL's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. The method blank was below the reporting limits for all target compounds.
4. All surrogate recoveries were within acceptance criteria.
5. Two (2) of sixteen (16) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
6. Due to insufficient sample volume, matrix spike QC could not be performed on any samples in this data set. However, blank spike QC were performed with these samples to demonstrate that systems were in control.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. To the best of my knowledge, this data report is in compliance with the terms and conditions of the purchase order, both technically and for completeness, for other than the conditions detailed in the case narrative. Release of the data contained in this hard copy data package and in the electronic data submitted on diskette has been authorized by the cognizant laboratory manager or his/her designee to be accurate as verified by the following signature.

  
Iain Daniels  
Laboratory Manager  
Lionville Laboratory Incorporated

  
Date

pefvr:\group\data\herb\tnu\08L-226.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 9 pages.

# Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 036L333

Initiator: Angie Sartore  
 Date: 9/18/03  
 Client: TRW

Batch: 0308L 226  
 Samples: BS, BSD  
 Method: SW846/MCAWW/CLP1

Parameter: CHB4  
 Matrix: Soil  
 Prep Batch: 03LE1012

## 1. Reason for SDR

a. COC Discrepancy  Tech Profile Error  Client Request  Sampler Error on C-O-C  
 Transcription Error  Wrong Test Code  Other \_\_\_\_\_

### b. General Discrepancy

Missing Sample/Extract  Container Broken  Wrong Sample Pulled  Label ID's Illegible  
 Hold Time Exceeded  Insufficient Sample  Preservation Wrong  Received Past Hold  
 Improper Bottle Type  Not Amenable to Analysis

Note: Verified by [Log-In] or [Prep Group] (circle)...signature/date: \_\_\_\_\_

### c. Problem (Include all relevant specific results; attach data if necessary) <sup># 1613</sup>

① High Dinoseb recovery in BS and BSD at <sup>123</sup> 120 and 1208, respectively.  
 GC limits 100%. Samples are clean.

## 2. Known or Probable Causes(s)

## 3. Discussion and Proposed Action

Other Description: Non Note

- Re-log
  - Entire Batch
  - Following Samples: \_\_\_\_\_
- Re-leach
- Re-extract
- Re-digest
- Revise EDD
- Change Test Code to \_\_\_\_\_
- Place On/Take Off Hold (circle)

*[Signature]* 9/18/03

## 4. Project Manager Instructions...signature/date:

- Concur with Proposed Action
- Disagree with Proposed Action; See Instruction
- Include in Case Narrative
- Client Contacted: \_\_\_\_\_
- Date/Person \_\_\_\_\_
- Add
- Cancel

## 5. Final Action...signature/date:

Other Explanation:

- Verified re-[log][leach][extract][digest][analysis] (circle)
- Included in Case Narrative
- Hard Copy COC Revised
- Electronic COC Revised
- EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

### Route Distribution of Completed SDR

- X Initiator
- X Lab General Manager: M. Taylor
- X Project Mgr: Stone/Johnson/Haslett
- X Technical Mgr: Wesson/Daniels
- X QA (file)
- Data Management: Feldman
- Sample Prep: Beegle/Kiger

### Route Distribution of Completed SDR

- Metals: Beegle
- Inorganic: Perrone
- GC/LC: Kiger
- MS: Rychlak/Layman
- Log-in: Melnic
- Admin: Soos
- Other: \_\_\_\_\_



## GLOSSARY OF HERBICIDE DATA

### DATA QUALIFIERS

- J = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I = Interference.

### ABBREVIATIONS

- BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD = Indicates blank spike duplicate.
- MS = Indicates matrix spike.
- MSD = Indicates matrix spike duplicate.
- DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA = Not Applicable.
- DF = Dilution Factor.
- NR = Not Required.
- SP = Indicates Spiked Compound.



## GLOSSARY OF HERBICIDE DATA

- = This flag is used for an Herbicide target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
- = This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- = This flag applies to a compound that has been confirmed by HPLC.

Lionville Laboratory, Inc.

Herbicides, Special List

Report Date: 09/08/03 14:36

RFW Batch Number: 0308L226

Client: TNUHANFORD F03-012 H2317 Work Order: 11343606001 Page: 1

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Sample Information	Cust ID:	B17C34	B17C35	B17C36	PBLKCN	PBLKCN BS	PBLKCN BSD
	RFW#:	001	002	003	03LE1012-MB1	03LE1012-MB1	03LE1012-MB1
	Matrix:	SOLID	SOLID	SOLID	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Surrogate:	DCAA	52 %	58 %	92 %	100 %	114 %	120 %
=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====							
Dalapon		170 U	170 U	170 U	170 U	110 %	114 %
Dicamba		67 U	67 U	67 U	67 U	111 %	121 %
Dichloroprop		170 U	170 U	170 U	170 U	118 %	123 %
2,4-D		33 U	33 U	33 U	33 U	111 %	121 %
2,4,5-TP (Silvex)		17 U	17 U	17 U	17 U	119 %	123 %
2,4,5-T		17 U	17 U	17 U	17 U	116 %	125 %
2,4-DB		170 U	170 U	170 U	170 U	94 %	114 %
Dinoseb		17 U	17 U	17 U	17 U	123 * %	120 * %

*Handwritten signature/initials*

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.  
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC



**FH-Central Plateau Project**

**CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST**

Collector Johansen/Pope/Pfister	Company Contact Steve Trent	Telephone No. 373-5869	Project Coordinator TRENT, SJ	Price Code 9N	Data Turnaround 45 Days
Project Designation 200-PW-2/200-PW-4 OU - Other Solid	Sampling Location 200-PW-2/200-PW-4 Retention Basin	SAF No. F03-012	Air Quality <input type="checkbox"/>		
Ice Chest No. ERC 01-037	Field Logbook No. HNF-336-1	COA 117504ES10	Method of Shipment Federal Express		
Shipped To EBERLINE SERVICES (Formerly TMA) <i>Recra</i>	Offsite Property No. A030 342	Bill of Lading/Air Bill No. <i>S F E O S P C</i>			

POSSIBLE SAMPLE HAZARDS/REMARKS <i>N/A Potentially Radioactive Tres To B17C44</i>	Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Non
	Type of Container	aG	aG	aG	aG	aG
	No. of Container(s)	1	1	1	1	1
	Volume	60mL	60mL	60mL	60mL	60mL

SAMPLE ANALYSIS	Pesticides - 8081	PCBs - 8082	Chloro-Herbicides - EPA8151	NO2/NO3 - 353.2; Oil & Grease - 413.1	See Item (1) in Special Instructions.

Sample No.	Matrix *	Sample Date	Sample Time	X	X	X
B17C34	OTHER SOLID	8-13-03	0830	X	X	X
B17C35	OTHER SOLID	8-13-03	0930	X	X	X
B17C36	OTHER SOLID	8-13-03	1010	X	X	X

<b>CHAIN OF POSSESSION</b>	<b>Sign/Print Names</b>	<b>SPECIAL INSTRUCTIONS</b>	<b>Matrix *</b>
Relinquished By/Removed From <i>M. J. Johnson</i>	Received By/Stored In <i>M. J. Johnson</i>	N/A (1) Polonium-210, Strontium-89,90 - Total Sr, Isotopic Thorium (Thorium-232), Carbon-14, Iodine-129, Nickel-63, Neptunium-237, Tritium - H3 Personnel not available to Relinquish samples from 3728 Ref # 3A on 8/18/03	S-Soil SE-Sediment SO-Solid SL-Slag W-Water O-Oil A-Air DS-Drum Solids DL-Drum Liquids T-Tissue WF-Wipe L-Liquid V-Vegetation X-Other
Relinquished By/Removed From <i>M. J. Johnson</i>	Received By/Stored In <i>M. J. Johnson</i>		
Relinquished By/Removed From <i>M. J. Johnson</i>	Received By/Stored In <i>M. J. Johnson</i>		
Relinquished By/Removed From <i>3A 3728</i>	Received By/Stored In <i>R. F. Kelly</i>		
Relinquished By/Removed From <i>R. F. Kelly</i>	Received By/Stored In <i>F. E. Ex</i>		
Relinquished By/Removed From <i>Dee Ex</i>	Received By/Stored In <i>D. J. Smith</i>		

<b>LABORATORY SECTION</b>	Received By	Title	Date/Time
<b>FINAL SAMPLE DISPOSITION</b>	Disposal Method	Disposed By	Date/Time

# LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

CLIENT: TNU Hanford

Purchase Order/Project:

DATE: 8-19-03

SAF# / SOW# / Release #: F03-012

Laboratory SDG #: 0308L226

**NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION**

- |  |   |                             |   |  |
|--|---|-----------------------------|---|--|
| 1. Custody seals on coolers or shipping container intact, signed and dated?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 2. Outside of coolers or shipping containers are free from damage?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 3. Airbill # recorded?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 5. Sample containers are intact?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 6. Custody seals on sample containers intact, signed and dated?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 7. All samples on coc received?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 8. All sample label information matches coc?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?)   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 10. Shipment meets LvLI Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 11. Where applicable, bar code labels are affixed to coc?  | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 12. coc signed and dated?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 13. coc will be faxed or emailed to client?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date)   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |

Cooler # / temp (°C) and Comments:

# ERC 01-037 / 5.6°

Laboratory Sample Custodian:

*D. Smith*

Laboratory Project Manager:

Lionville Laboratory, Inc.  
 INORGANIC ANALYTICAL DATA PACKAGE FOR  
 TNUHANFORD F03-012 H2317

DATE RECEIVED: 08/19/03

LVL LOT # :0308L226

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
---------------------	-------	-----	--------	------------	-----------	----------

B17C34

% SOLIDS	001		SO 03L&S110	08/13/03	08/22/03	08/24/03
NITRATE NITRITE	001		SO 03LN3051	08/13/03	09/05/03	09/05/03
NITRATE NITRITE	001	REP	SO 03LN3051	08/13/03	09/05/03	09/05/03
NITRATE NITRITE	001	MS	SO 03LN3051	08/13/03	09/05/03	09/05/03
OIL & GREASE BY GRAV	001		SO 03LOG039	08/13/03	09/01/03	09/03/03
OIL AND GREASE BY GR	001	REP	SO 03LOG039	08/13/03	09/01/03	09/03/03
OIL AND GREASE BY GR	001	MS	SO 03LOG039	08/13/03	09/01/03	09/03/03

B17C35

% SOLIDS	002		SO 03L&S110	08/13/03	08/22/03	08/24/03
NITRATE NITRITE	002		SO 03LN3051	08/13/03	09/05/03	09/05/03
OIL & GREASE BY GRAV	002		SO 03LOG039	08/13/03	09/01/03	09/03/03

B17C36

% SOLIDS	003		SO 03L&S110	08/13/03	08/22/03	08/24/03
NITRATE NITRITE	003		SO 03LN3051	08/13/03	09/05/03	09/05/03
OIL & GREASE BY GRAV	003		SO 03LOG039	08/13/03	09/01/03	09/03/03

LAB QC:

NITRATE NITRITE	MB1		S 03LN3051	N/A	09/05/03	09/05/03
NITRATE NITRITE	MB1	BS	S 03LN3051	N/A	09/05/03	09/05/03
OIL & GREASE BY GRAV	MB1		S 03LOG039	N/A	09/01/03	09/03/03
OIL AND GREASE BY GR	MB1	BS	S 03LOG039	N/A	09/01/03	09/03/03





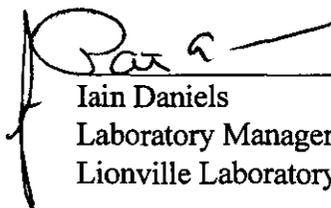
## Analytical Report

**Client:** TNU-HANFORD F03-012 H2317  
**LVL#:** 0308L226

**W.O.#:** 11343-606-001-9999-00  
**Date Received:** 08-19-03

### INORGANIC NARRATIVE

1. This narrative covers the analyses of 3 solid samples.
2. The samples were prepared and analyzed in accordance with the methods indicated on the attached glossary.
3. Sample holding times as required by the method and/or contract were met.
4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.
5. The method blanks were within the method criteria.
6. The Laboratory Control Samples (LCS) were within the laboratory control limits.
7. The matrix spike recoveries for Nitrate Nitrite and Oil and Grease were within the 75-125% control limits.
8. The replicate analyses for Nitrate Nitrite and Oil and Grease were within the 20% Relative Percent Difference (RPD) control limit.
9. Results for solid samples are reported on a dry weight basis.
10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

  
Iain Daniels  
Laboratory Manager  
Lionville Laboratory Incorporated

09-12-03  
Date

njpl08-226

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 11 pages.

02

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	<u>ASTM</u>	<u>SW846</u>	<u>OTHER</u>
% Ash	— D2216-80		
% Moisture	— D2216-80		— ILMO4.0 (e)
% Solids	✓ D2216-80		— ILMO4.0 (e)
% Volatile Solids	— D2216-80		
ASTM Extraction in Water	— D3987-81/85		
BTU	— D240-87		
CEC		— 9081	— c
Chromium VI		— 3060A/7196A	
Corrosivity ___ by coupon ___ by pH		— 1110(mod) — 9045C	
Cyanide, Total		— 9010B	— ILMO4.0 (e)
Cyanide, Reactive		— Section 7.3/9014	
Halides, Extractable Organic		— 9020B	— EPA 600/4/84-008
Halides, Total		— 9020B	— EPA 600/4/84-008
EP Toxicity		— 1310A	
Flash Point		— 1010	
Ignitability		— 1010	
Oil & Grease		✓ 9071A(mod.)	✓ 413.1(mod.)
Carbon, Total Organic		— 9060	— Lloyd Kahn(mod)
Oxygen Bomb Prep for Anions	— D240-87(mod)	— 5050	
Petroleum Hydrocarbons, Total Recoverable		— 9071	— EPA 418.1
pH, Soil		— 9045C	
Sulfide, Reactive		— Section 7.3/9030B	
Sulfide		— 9030B(mod)	
Specific Gravity	— D1429-76C/	— D5057-90	
Sulfur, Total		— 9056	
Synthetic Preparation Leach		— 1312	
Paint Filter		— 9095A	
Other: <i>Nitrate Nitrite</i>		Method: <i>EPA 353.2(mod.)</i>	
Other:		Method	

## Lionville Laboratory Incorporated

# METHOD REFERENCES AND DATA QUALIFIERS

### DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

\* = Indicates that the original sample result is greater than 4x the spike amount added.

### ABBREVIATIONS

MB = Method or Preparation Blank.

MS = Matrix Spike.

MSD = Matrix Spike Duplicate.

REP = Sample Replicate

LC = Laboratory Control Sample.

NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

### ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.
2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).
3. Test Methods for Evaluating Solid Waste (USEPA SW-846).
  - a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).
  - b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).
  - c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).
  - d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).
  - e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.
  - f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/11/03

CLIENT: TNUHANFORD F03-012 H2317  
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0308L226

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
*****	*****	*****	*****	*****	*****	*****
-001	B17C34	% Solids	96.6	%	0.01	1.0
		Nitrate Nitrite	0.17	u MG/KG	0.17	1.0
		Oil & Grease Gravimetri	690	u MG/KG	690	1.0
-002	B17C35	% Solids	96.8	%	0.01	1.0
		Nitrate Nitrite	0.32	MG/KG	0.20	1.0
		Oil & Grease Gravimetri	690	u MG/KG	690	1.0
-003	B17C36	% Solids	97.3	%	0.01	1.0
		Nitrate Nitrite	0.17	u MG/KG	0.17	1.0
		Oil & Grease Gravimetri	685	u MG/KG	685	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 09/11/03

CLIENT: TNUHANFORD F03-012 H2317  
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0308L226

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	03LN3051-MB1	Nitrate Nitrite	0.20	u MG/KG	0.20	1.0
BLANK10	03LOG039-MB1	Oil & Grease Gravimetri	667	u MG/KG	667	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 09/11/03

CLIENT: TNUHANFORD P03-012 H2317  
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0308L226

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B17C34	Nitrate Nitrite	4.0	0.17u	4.7	85.0	1.0
		Oil & Grease Gravimetr	6460	690 u	6530	98.9	1.0
BLANK10	03LN3051-MB1	Nitrate Nitrite	5.0	0.20u	5.0	99.8	1.0
BLANK10	03LOG039-MB1	Oil & Grease Gravimetr	6070	667 u	6310	96.2	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 09/11/03

CLIENT: TNUHANFORD F03-012 H2317  
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0308L226

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-001REP	B17C34	Nitrate Nitrite	0.17u	0.17	NC	1.0
		Oil & Grease Gravimetri	690 u	690 u	NC	1.0



0308L226

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client <u>TNU-Hanford</u> <u>F03-012</u>	Refrigerator #	A	B	C
Est. Final Proj. Sampling Date	#/Type Container	Liquid		
Project # <u>11343-606-001-9999-00</u>		Solid	<u>1g</u>	<u>1g</u>
Project Contact/Phone #	Volume	Liquid		
Lionville Laboratory Project Manager <u>Orlette Johnson</u>		Solid	<u>60</u>	<u>60</u>
QC <u>SPIC</u> Del <u>STD</u> TAT <u>2 days</u>	Preservatives		<u>1</u>	<u>1</u>
Date Rec'd <u>8-19-03</u> Date Due <u>9-18-03</u>	ANALYSES REQUESTED	ORGANIC		INORG
		VOA	BNA	Pest/ PGB
				Herb
				Metal
				CN

MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS MSD	Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only														
							0608H	0486X													
							0608H	0486X													
	001	B17C34		SO	8-13-03	0830		X	X												
	002	B17C35		I	I	0930		X	X												
	003	B17C36				1010		X	X												

Special Instructions: SAF # F03-012  
Run Matrix QC

DATE/REVISIONS:  
1. \_\_\_\_\_  
2. \_\_\_\_\_  
3. \_\_\_\_\_  
4. \_\_\_\_\_  
5. \_\_\_\_\_  
6. \_\_\_\_\_

Lionville Laboratory Use Only

Samples were:  
1) Shipped  or Hand Delivered \_\_\_\_\_  
Airbill # \_\_\_\_\_

2) Ambient or Chilled  
3) Received in Good Condition  or N  
4) Samples Properly Preserved  or N  
5) Received Within Holding Times  or N

Tamper Resistant Seal was:  
1) Present on Outer Package  or N  
2) Unbroken on Outer Package  or N  
3) Present on Sample  or N  
4) Unbroken on Sample  or N  
COC Record Present Upon Sample Rec't  or N  
Cooler Temp. 5.6 °C

Relinquished by	Received by	Date	Time
<u>Dee Ex</u>	<u>Orlette Johnson</u>	<u>8-19-03</u>	<u>10:35</u>

Relinquished by	Received by	Date	Time
<u>"COMPOSITE WASTE"</u>	<u>ORIGINAL REWRITTEN</u>		

Discrepancies Between Samples Labels and COC Record? Y or  N  
NOTES:  
#7903 8181 9823

Collector Johansen/Popo/Pfister	Company Contact Steve Trent	Telephone No. 373-5869	Project Coordinator TRENT, SJ	Price Code 9N	Data Turnaround 45 Days
Project Designation 200-PW-2/200-PW-4 OU - Other Solid	Sampling Location 200-PW-2/200-PW-4 Retention Basin	SAF No. F03-012	Air Quality <input type="checkbox"/>		

Ice Chest No. ERC 01-037	Field Logbook No. HNF-336-1	COA 117504ES10	Method of Shipment Federal Express		
Shipped To EBERTINE SERVICES (Formerly TMA) <i>Recra</i>	Offsite Property No. A030 342	Bill of Lading/Air Bill No. S F E O S P C			

POSSIBLE SAMPLE HAZARDS/REMARKS <i>N/A Potentially Radioactive</i> <i>Tests B17C44</i> Special Handling and/or Storage <i>N/A</i>	Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None				
	Type of Container	aG	aG	aG	aG					
	No. of Container(s)	1	1	1	1					
	Volume	60mL	60mL	60mL	60mL	60mL				

SAMPLE ANALYSIS	Pesticides - 8081	PCBs - 8082	Chloro-Herbicides - EPA8151	NO2/NO3 - 353.2; Oil & Grease - 413.1	See item (1) in Special Instructions.					
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Sample No.	Matrix *	Sample Date	Sample Time							
B17C34	OTHER SOLID	8-13-03	0830	X		X	X			
B17C35	OTHER SOLID	8-13-03	0930	X		X	X			
B17C36	OTHER SOLID	8-13-03	1010	X		X	X			

CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *	
Relinquished By/Removed From <i>Moorensen</i>	Date/Time 8-13-03	Received By/Stored In <i>MO-0260 Ref#1</i>	Date/Time 8-13-03	N/A (1) Technetium-99, Strontium-89,90 -- Total Sr, Isotopic Thorium (Thorium-232); Carbon-14, Iodine-129, Nickel-63, Neptunium-237, Tritium-H3 -- <i>TMS 8-13-03</i>  Personnel not available to Relinquish samples from 3728 Ref# <i>360n 8/18/03</i>				S-Soil SE-Sediment SO-Solid SL-Slag W - Water O-OR A-Air DS-Drum Solids DL-Drum Liquids T-Time Wt-Wipe L-Liquid V-Vegetation X-Other	
Relinquished By/Removed From <i>MO-0260 Ref#1</i>	Date/Time 8-14-03	Received By/Stored In <i>Moorensen Ref#1</i>	Date/Time 8-14-03						
Relinquished By/Removed From <i>Moorensen</i>	Date/Time 8-14-03	Received By/Stored In <i>Ref 3A</i>	Date/Time 8-14-03 0900						
Relinquished By/Removed From <i>3A 3728</i>	Date/Time 8-18-03	Received By/Stored In <i>R. G. Kelly R. F. H. L.</i>	Date/Time 8-18-03						
Relinquished By/Removed From <i>P. K. Hill R. F. H. L.</i>	Date/Time 8-18-03	Received By/Stored In <i>Fed Ex</i>	Date/Time						
Relinquished By/Removed From <i>Deo Ex</i>	Date/Time 8-19-03/10:35	Received By/Stored In <i>D. J. Smith</i>	Date/Time 8-19-03/10:35						

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

# LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

CLIENT: TNU Hanford

Purchase Order/Project:

DATE: 8-19-03

**SAF#** SOW# / Release #: F03-012

Laboratory SDG #: Q308L226

**NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION**

- |  |   |                             |   |  |
|--|---|-----------------------------|---|--|
| 1. Custody seals on coolers or shipping container intact, signed and dated?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 2. Outside of coolers or shipping containers are free from damage?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 3. Airbill # recorded?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 5. Sample containers are intact?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 6. Custody seals on sample containers intact, signed and dated?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 7. All samples on coc received?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 8. All sample label information matches coc?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?)   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 10. Shipment meets LvLI Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 11. Where applicable, bar code labels are affixed to coc?  | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 12. coc signed and dated?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 13. coc will be faxed or emailed to client?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date)   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |

Cooler # / temp (°C) and Comments:

# ERC 01-037 / 5.6°

Laboratory Sample Custodian:

*D. Smith*

Laboratory Project Manager: